IS 11722 (1986): Thin walled flexible quick coupling pipes
[MTD 19: Steel Tubes, Pipes abd Fittings]

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Indian Standard

SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

(First Reprint FEBRUARY 2001)

UDC 621.643.415

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3

November 1986

AMENDMENT NO. 5 JANUARY 2011
TO
IS 11722 : 1986 SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

[*Page* 5, *clause* **6.1**, *Table* 1 (*see also Amendment No.* 3)] — Add the Type C pipes for the following sizes in Table 1:

Outside Diameter, mm	**Wall Thickness**, mm
	Type C‡
25.4	2.00
31.8	2.00
38.1	2.00
50.8	2.50
63.5	2.50
76.2	2.50
101.6	3.00
127.0	3.00
152.4	3.40
203.2	4.00
254.0	4.50
304.8	5.00

‡The test pressure is 5 MPa and mechanically clamped couplers.

(MTD 19)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 4 JUNE 2010
TO
IS 11722 : 1986 SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

(*Page* 3, *clause* **0.2**) — Substitute the following for the existing:

'These pipes are intended for water supply where transportation and quick assembly of pipes are the main requisites. Some of the indicative uses cover the following:

a) Irrigation including sprinkler irrigation;
b) Construction site-water supply in civil engineering and construction projects; compressed air pipelines and networks at construction sites;
c) Temporary or emergency water service;
d) Suction lines (tube wells);
e) Dewatering in flood relief operations;
f) Dust suppression through sprinkling in mining, ore handling, etc;
g) Wellpoint dewatering networks;
h) Aeration in fish farming;
j) Fire preventing and fighting (coal yards/pits, timber yards/raw material stock yards for paper mills); and
k) Conduits.'

(MTD 19)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 DECEMBER 2007
TO
IS 11722 : 1986 SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

(*Page* 3, *Foreword, clause* **0.2**) — Substitute 'IS 1239 (Part 1) : 2004*' *for* 'IS : 1239 (Part 1)-1979*'.

(*Page* 3, *Foreword, footnote marked* *) — Substitute the following for the existing:

'Steel tubes, tubulars and other wrought steel fittings — Specification : Part 1 Steel tubes (*sixth revision*).'

(*Page* 4, *Foreword, clause* **0.2.1**) — Delete.

(*Page* 4, *clause* **2.1**, *read with Amendment No.* 2) — Substitute the following for the existing:

'The pipes shall be manufactured from the steel conforming to 'O' grade of IS 513 : 1994† for sizes up to 150 mm. Sizes above 150 mm shall be manufactured from steel conforming to IS 10748 : 2004**.'

(*Page* 4, *clause* **3.1**) — Substitute 'IS 1387 : 1993‡' *for* 'IS : 1387-1967‡'.

(*Page* 4, *footnote marked* †) — Substitute '(*fourth revision*)' *for* '(*second revision*)'.

(*Page* 4, *footnote marked* ‡) — Substitute '(*second revision*)' *for* '(*first revision*)'.

(*Page* 4, *footnotes*) — Add '**Hot rolled steel strip for welded tubes and pipes — Specification (*second revision*)' at the end.

(*Page* 5, *clause* **6.1**, *Table* 1, *read with Amendment No.* 2) — Substitute the following for the existing table:

Table 1 Sizes for Thin Walled Quick Coupling Pipes

Outside Diameter mm	Wall Thickness, mm	
	Type A*	Type B†
25.4	–	1.40
31.8	–	1.40
38.1	–	1.40
50.8	1.00	1.60
63.5	–	1.60
76.2	1.00	1.60
101.6	1.00	1.60
127.0	1.25	1.60
152.4	1.40	1.60
203.2	–	2.0
254.0	–	2.60
304.8	–	3.10

*Pressure activated couplers.
†Mechanically clamped couplers.

(*Page* 6, *clause* **9.1**) — Substitute 'IS 4736 : 1986*' *for* 'IS : 4736-1968*'.

(*Page* 6, *clause* **10.2**) — Substitute 'IS 5382 : 1985†' *for* 'IS : 5382-1969†'.

(*Page* 6, *Table* 2, *read with Amendment No.* 2) — Insert the following at the appropriate place:

'Outside Diameter	Volume per Minute
63.5 mm	8 ml'

(*Page* 6, *footnote marked* *) — Add '*(first revision)*' at the end.

(*Page* 6, *footnote marked* †) — Add '*(first revision)*' at the end.

(*Page* 7, *clause* **13.1**) — Substitute 'IS 2328 : 2005/ISO 8492 : 1998*' *for* 'IS : 2328-1983*'.

(*Page* 7, *clause* **13.2**) — Substitute 'IS 1608 : 2005/ISO 6892 : 1998†' *for* 'IS : 1894-1972†'.

(*Page* 7, *footnote marked* *) — Substitute the following for the existing:

'Metallic materials – Tube-flattening test (*second revision*).'

(*Page* 7, *footnote marked* †) — Substitute the following for the existing:

'Metallic materials — Tensile testing at ambient temperature (*third revision*).'

(*Page* 8, *clause* **17.2**) — Substitute the following for the existing clause:

'17.2 BIS Certification Marking

Each pipe may also be marked with the Standard Mark.

17.2.1 The use of Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.'

(MTD 19)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 APRIL 2006
TO
IS 11722 : 1986 SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

(*Page* 4, *clause* **2.1**) — Substitute the following the existing:

'The pipe shall be manufactured from the steel conforming to 'O' grade of IS 513. Pipe of nominal OD 250 and 300 mm may also be manufactured from steel conforming to IS 10748 Hot-rolled steel strip for welded tubes and pipes.'

(*Page* 5, *clause* **6.1**, *Table* 1) — Substitute the following for the existing table:

Table 1 Sizes for Thin Walled Quick Coupling Pipes

Outside Diameter mm	Wall Thickness, mm	
	Type A[1)]	Type B[2)]
25.4	—	1.40
31.8	—	1.40
38.1	—	1.40
50.8	1.00	1.60
63.5	—	1.60
76.2	1.00	1.60
101.6	1.00	1.60
127.0	1.25	1.60
152.4	1.40	1.60
203.2	—	2.00
254.0	—	2.60
304.8	—	3.10

[1)]Pressure activated couplers.
[2)]Mechanically clamped couplers.

(*Page* 6, *Table* 2) — Substitute the following for the existing table:

Table 2 Maximum Permissible Leakage

Outside Diameter	Volume Per Minute
mm	ml
50.8	7
76.2	10
101.6	13
127.0	17
152.4	20

(*Page* 8, *clause* 17.1, *line* 3) — Substitute 'outside diameter' *for* 'nominal diameter'.

(MTD 19)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 1 MAY 1987

TO

IS:11722-1986 SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

(Page 6, clause 10.3, line 3) - Substitute '0.3 MPa' for '30 N/mm^2'

(Page 7, clause 14.2, line 1) - Substitute '3 MPa' for '300 MPa'

(SMDC 22)

Printed at Simco Printing Press, Delhi, India

Indian Standard

SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

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(*Continued on page 2*)

(*Continued from page* 1)

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(*Continued on page* 10)

Indian Standard

SPECIFICATION FOR THIN WALLED FLEXIBLE QUICK COUPLING PIPES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 October 1986, after the draft finalized by the Steel Tubes, Pipes and Fittings Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 These pipes are intended for use where transportation and quick assembly and dismantling of pipes are the main requisites. Some of the indicative uses cover the following:

a) Irrigation including sprinkler irrigation;

b) Construction site-water supply in civil engineering and construction projects; compressed air pipe lines and networks at construction sites;

c) Temporary or emergency water service;

d) Suction lines (tube wells);

e) Dewatering in flood relief operations;

f) Dust supression through sprinkling in mining, ore handling, etc;

g) Industrial piping system requiring occasional dismantling for cleaning or realignment;

h) Wellpoint dewatering networks;

j) Aeration in fish farming; and

k) Fire preventing and fighting (coalyards/pits, timberyards/raw material stockyards for paper mills).

IS : 1239 (Part 1)-1979* specifies certain standards with regard to the use of pipes for conveyance of water, steam and gas. However, these pipes, the characteristics of which have been described above, and which can be used for conveyance of water alone on the lines indicated above, merit a separate standard.

*Specification for mild steel tubes, tubulars and other wrought steel fittings: Part 1 Mild steel tubes (*fourth revision*).

0.2.1 The use of this pipe for potable water supply (rural and urban) is under investigation.

0.3 In the formulation of this standard due weightage has been given to international co-ordination among the standards prevailing in different countries in addition to relating it to the practices in the field in this country. Assistance has also been derived from the following publications:

DIN 19651-1980	Quick coupling pipes — Test terms of delivery. Deutscher Normenausschuss.
DIN 19654-1980	Quick coupling pipes — Test — Deutscher Normenausschuss.
SABS 1182-1978	Light gauge welded steel pipes. South African Bureau of Standards.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements of electric resistance and induction welded steel pipes, protected by hot-dip galvanizing, using various types of flexible quick couplers.

2. MATERIAL

2.1 Pipes shall be made from tested quality cold rolled steel conforming to 'O' grade of IS : 513-1973†.

3. SUPPLY OF MATERIAL

3.1 General requirements relating to the supply of material shall conform to IS : 1387-1967‡.

*Rules for rounding off numerical values (*revised*).
†Specification for cold rolled carbon steel sheets and strips (*second revision*).
‡General requirements for the supply of metallurgical materials (*first revision*).

4. MANUFACTURE

4.1 Pipes shall be manufactured by one of the following processes:

a) Electric resistance welded (ERW)

b) High frequency induction welded (HFIW)

NOTE — ERW pipes shall not be rectified by welding.

5. WORKMANSHIP AND FINISH

5.1 Tubes shall be cleanly finished, free from cracks, surface flaws, laminations and other defects.

6. DIMENSIONS

6.1 The pipes shall conform to the dimensions given in Table 1.

TABLE 1 SIZES FOR THIN WALLED QUICK COUPLING PIPES

NOMINAL OUTSILE DIAMETER	ACTUAL OUTSIDE DIAMETER	WALL THICKNESS IN mm	
		Type A*	Type B†
(1)	(2)	(3)	(4)
mm	mm		
50	50·8	1·0	1·6
75	76·2	1·0	1·6
100	101·6	1·0	1·6
125	127·0	1·25	1·6
150	152·4	1·4	1·6

*Pressure activated couplers.

†Mechanically clamped couplers.

7. TOLERANCES

7.1 The following tolerances shall apply:

	Permissible Deviation percent
Outside diameter for all sizes	±0·75
Wall thickness for all sizes	±8

8. LENGTH

8.1 Length of the pipe shall be 6 m with a tolerance of ±10 mm. The length measured shall not include the coupler. Other lengths may be supplied on the request of the purchaser.

9. GALVANIZING

9.1 Pipes complete with couplers or end fittings shall be hot-dip galvanized after manufacture so that no part remains ungalvanized or they may be galvanized separately and joined together. The hot-dip galvanizing shall be in accordance with IS : 4736-1968* with a minimum zinc coating of 500 g/m^2.

10. COUPLERS FOR THIN WALLED COUPLING PIPES

10.1 Pipes are to be supplied with couplers for quick coupling application according to the requirements of the users. The manufacturers may use differents types of couplers of their own proprietory design provided they conform to the leak test, angularity test and pressure test specified in this standard. Details of some of the couplers in use are given in Appendix A.

10.2 At least one end of the pipe shall have a coupler which can be either formed or welded or bonded. If any rubber parts are used in the couplers, they shall conform to type 1B according to **2.1** and Table 1 of IS : 5382-1969†. The pipes should not be threaded.

10.3 In so far mechanical coupling is concerned, no leakage would be permitted. For pressure activated couplers, the permissible leakage would be only at 30 N/mm^2 (*see* Table 2).

TABLE 2 MAXIMUM PERMISSIBLE LEAKAGE

Nominal Outside Diameter	Volume per Minute
mm	ml
50	7
75	10
100	13
125	17
150	20

11. ANGULARITY OF JOINT

11.1 When pipes are coupled the joint should have a minimum angular displacement capability between adjacent pipes according to Table 3 in each plane with respect to the pipe axis.

12. STRAIGHTNESS

12.1 Unless otherwise agreed to between the purchaser and the manufacturer, the tubes shall be reasonably straight.

*Specification for hot-dip zinc coatings on steel tubes.
†Rubber sealing rings for gas mains, water mains and sewers.

TABLE 3 MINIMUM ANGULAR DISPLACEMENT, α BETWEEN ADJACENT PIPES IN EACH PLANE FROM AXIS

(*Clause* 11.1)

TYPE	α
Pressure activated couplers	8°
Mechanically clamped couplers	1·5°

13. PHYSICAL TEST REQUIREMENTS

13.1 Flattening Test — Rings not less than 40 mm in length, cut from pipes during production shall be flattended between parallel plates with the weld at 90° (point of maximum bending) in accordance with IS : 2328-1983*. No opening shall occur by fracture in the weld until the distance between plates is less than 75 percent of the original outside diameter of the pipe and no cracks or breaks in the metal elsewhere than in the weld shall occur until the distance between the plates is less than 60 percent of the original outside diameter.

13.2 Tensile Test — The tensile test shall be done on the length cut from the ends of selected pipes (the ends being plugged for grips where necessary) or on longitudinal strips not including the weld cut from the pipes. The tensile strength, yield strength and percentage elongation shall be determined in accordance with IS : 1894-1972† and the value shall be as specified below:

Tensile strength	320 MPa, minimum
Yield strength	210 MPa, minimum
Percentage elongation	minimum 20 on a guage length of $5{\cdot}65\sqrt{S_o}$ where S_o is the original cross-sectional area of the test specimen.

14. HYDRAULIC TEST

14.1 Each pipe with coupler attached or finished ends shall be hydraulically tested before or after galvanizing.

14.2 Each pipe shall withstand a test pressure of 300 MPa without showing defects of any kind. The pressure shall be applied by approved means and maintained sufficiently long for proof and inspection. The testing apparatus shall be fitted with an accurate pressure indicator, and provision shall be made for its accuracy to be verified by the purchaser, if required.

*Method for flattening test on metallic tubes (*first revision*).
†Method for tensile testing of steel tubes (*first revision*).

15. SAMPLING AND CRITERIA FOR CONFORMITY

15.1 Unless otherwise agreed to between the purchaser and the manufacturer, the procedure for sampling of tubes for various tests and criteria for conformity shall be as given in IS : 4711-1974*.

15.2 While applying IS : 4711-1974*, angularity of joint shall be treated as dimensional characteristic and accordingly the sampling and criteria for conformity shall be as given in col 4 and 5 of Table 1 of IS : 4711-1974*.

In the case of mechanical cupling, 100 percent of pipes shall be tested for leakage and no leakage shall be allowed. In the case of pressure activated couplers sample size and criteria for conformity shall be in accordance with col 3, 4 and 5 of Table 2 of IS : 4711-1974*.

16. DISPOSAL OF SUBSTANDARD PIPES

16.1 The residual quantities of substandard quality left with manufacturers/traders shall be punched with holes of minimum 5 mm diameter to be clear and through, by any process, at intervals of maximum 1·5 metres between such punched holes, before being sold in the markets.

17. MARKING

17.1 Grade A and Grade B pipes should have different colour codings to distinguish them. These pipes should be marked with manufacturer's name and nominal diameter.

17.2 The pipes may be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

APPENDIX A

(*Clause* 10.1)

DETAILS OF SOME OF THE COUPLERS IN USE

A-1. Mechanically clamped by over centre leverage. Positive sealing by clampling against rubber 'O' ring.

*Methods of sampling of steel pipes, tubes and fittings (*first revision*).

A-2. Two parts held together by swivelling piece (hook) engaging in slot on top of female coupler. Pressure activated sealing by rubber 'V' ring in groove.

A-3. Two half clamps engage on collars or rings on pipe ends. Clamps joined by bolts or by a pivot on one side and over centre toggle or spring loaded hook on other side or combination of methods. Positive sealing by rubber 'C' ring contained by clamps.

A-4. Male half held in female by spiral spring that is compressed and held in place by fluid pressure acting on sealing ring. When pressure removed spiral ring can expand and male half can be released. Pressure activated sealing by rubber 'V' ring in groove.

(*Continued from page* 2)

Ad-hoc Group to Consider the Draft Indian Standard Specification for Thin Walled Quick Coupling Pipes for Low Pressure Applications, SMDC : AG

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Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001	8-28 88 01
Savitri Complex, 116 G.T. Road, GHAZIABAD 201001	8-71 19 96
53/5 Ward No. 29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003	54 11 37
5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001	20 10 83
E-52, Chitaranjan Marg, C-Scheme, JAIPUR 302001	37 29 25
117/418 B, Sarvodaya Nagar, KANPUR 208005	21 68 76
Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226001	23 89 23
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